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POULTRY GRADING MANUAL

PROCUREMENT SECTION
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Revised March 1977

POULTRY GRADING MANUAL

INTRODUCTION

This manual is a guide to the uniform application of the United States Classes, Standards, and Grades of Poultry. Although designed primarily to aid poultry graders, it should prove useful to those teaching poultry marketing and to the poultry industry.

For student graders to understand the proper grading of poultry for condition and quality, it is essential to have knowledge of the structure of the bird and to know the different classes of poultry and the terminology used to designate these classes. The information in the manual should prove helpful in attaining these objectives.

Graders and others who have had considerable experience with poultry are sufficiently familiar with the anatomy and physiology of the bird to understand the connection between its structure and certain grading factors. Therefore, there is no detailed description of poultry anatomy and physiology. An illustration of the skeletal system is used to show the points where poultry is cut into parts in accordance with the U.S. Department of Agriculture (USDA) regulations.

Standards and Grades

The difference between standards of quality and grades is sometimes misunderstood. Standards of quality enumerate all the factors that determine the grade. These factors, such as fat covering, fleshing, exposed flesh, discolorations, etc., are evaluated to determine the grade of the bird.

The U.S. Consumer Grades for Poultry—U.S. Grades A, B, and C—are most important since they are used at the retail level.

The U.S. Procurement Grades I and II are primarily for institutional use. Procurement grades place more emphasis on meat yield than on appearance.

Earlier editions of this manual have described the grading of live and dressed poultry. The USDA poultry grading regulations no longer provide grade standards for live and dressed poultry. Modern procurement practices make live poultry grading unnecessary and the production of dressed poultry has practically ceased. However, information on the determination of the class and the grading of live poultry has been retained in this manual for the use of student judging classes, vocational agriculture classes, and agricultural college courses. The former official live poultry standards are now referred to as suggested standards.

General Use of Standards and Grades

The United States Standards of Quality and Grades are for the use of anyone interested in poultry marketing. The standards and grades can be used for several purposes.

1. Many processors request USDA's full-time resident grading service so that they may use the official grade on each bird or package.
2. The armed forces and Federal, State, county, and city institutions, as well as other large-scale buyers such as airlines, steamship lines, independent and chain stores, and private hospitals use the grading service by specifying U.S. graded poultry products in their food contracts.
3. Anyone with a financial interest in a lot of processed poultry may apply to USDA to have an official grade designation placed on the lot.
4. Commercial firms often use the U.S. Standards of Quality and Grades as a basis for specifications for their own products.

GRADING AND INSPECTION PROGRAMS

Grading generally involves sorting products according to quality and size, but it also includes the determination of the class and condition of products. For poultry, grading may be for determining class, quality, quantity, or condition, or for any combination of these factors.

All poultry that is graded must first be inspected. Inspection refers to the condition of poultry and its healthfulness and fitness for food. It is not concerned with the quality or grade of poultry. The inspection mark on poultry or poultry products means that they have been examined during processing by a veterinarian or by qualified inspectors under the supervision of a veterinarian. Plants which apply for inspection service and are approved are known as official or approved plants or establishments.

Inspection Services

Under the Poultry Products Inspection Act of 1957, USDA provides compulsory Federal inspection of poultry and poultry products shipped in interstate or foreign commerce. The Wholesome Poultry Products Act of 1968 amended that law to strengthen it and to open the way for vastly improved State poultry inspection systems.

All poultry slaughtered for human food destined for sale in commerce must be processed and handled in accordance with the Act and its regulations. Federal inspection service, except for overtime and holiday work, is paid for by the Government.

States with inspection systems equal to the Federal program can handle inspection in plants shipping only in intrastate commerce. In States without such programs, intrastate plants are also under Federal inspection. USDA offers the States technical and financial aid for developing inspection programs.

A voluntary inspection service is provided under authority of the Agricultural Marketing Act of 1946 for squab, game birds, and rabbits. These items are not covered under the mandatory program. The cost of this service is paid by the applicant.

The requirements for the plant, operating procedures, inspection procedures, and packaging and labeling for the voluntary program

are the same as those for the mandatory program.

Administration of both mandatory and voluntary Federal inspection is assigned to the Meat and Poultry Inspection Program of USDA's Animal and Plant Health Inspection Service (APHIS).

Grading Service

USDA's voluntary poultry grading services may be requested by individuals, firms, or government agencies. Services are performed on the basis of regulations developed in cooperation with health and marketing officials, poultry producers and processors, and consumers.

Programs Offered

The programs and services available are:

1. Grading of ready-to-cook poultry and poultry products, including parts.
2. Grading of poultry food products in official or approved plants.
3. Grading according to contract or applicant's specifications.
4. Producer grading.
5. Weight tests, etc.

Plants approved for inspection service are approved for grading service if facilities are adequate for grading work.

Resident or continuous grading is performed by graders stationed in the applicant's processing plant who are available at all times. Most resident grading is performed in processing plants. Grading is also performed at shipping points in the more concentrated production areas. Some processors and distributors at terminal markets or major distribution centers also use resident or continuous grading service.

Resident grading costs include an amount equal to the salary of the grader and a charge based on the volume of product handled in the plant to cover supervisory and administrative costs. The cost per pound for this service is generally little more than that incurred by plants employing their own graders.

In plants processing a large volume of poultry, the resident grader is assisted by plant employees authorized to grade. These authorized personnel, under the supervision of the resident grader, sort the poultry according to

quality. Final grading and certification is made by the resident grader.

Fee grading is performed when an applicant requests grading of a particular lot or carload of poultry. Requests for this type of service are usually made on an irregular basis and the charges are based on the time needed to perform the service. Most fee grading work is done at terminal markets to determine if a lot of poultry meets purchase requirements. Some shippers and processors also use this type of service to fulfill purchase contract specifications.

Most poultry graded at terminal markets is graded on a representative sample basis.

Duties of a Grader

USDA licensed graders are thoroughly instructed in their duties. The major responsibilities of a grader are to:

1. Grade products for class, quality, quantity, and/or condition.
2. Make condition inspections of poultry containers and transportation vehicles.
3. Make weight tests when requested.
4. Supervise the grading of all authorized personnel under the grader's jurisdiction and check-grade all product graded by them.
5. Observe the packing and marking of product to be officially identified.
6. Issue grading certificates or other documents required by the Military, other government agencies, or institutional buyers.
7. Complete all reports incidental to the grading service.
8. Keep files and indexes up to date.
9. Keep in custody at all times, official marking devices, certificates, official memoranda, and any other assigned equipment.
10. Promptly report any irregularities to the supervisor.
11. Set an example for plant employees as to work, dress, actions, etc. Observe sound safety rules.

Administration of Program

The voluntary grading program is administered by the Grading Branch of the Poultry Division, Agricultural Marketing Service (AMS), U.S. Department of Agriculture. Grading is performed under the direction of a national,

regional, State, and circuit supervisory organization. The primary duties of the supervisory staff are to: (1) maintain uniformity of application of the services in the field; (2) assure compliance with the regulations governing these services; (3) see that all grade standards are properly interpreted and applied.

Cooperative Agreements

Grading is conducted on the basis of cooperative agreements between AMS and various State agencies. These agreements set forth the responsibilities of both AMS and the cooperating parties. There are two main types of agreements: State Trust Fund and Federal Trust Fund. Under the State Trust Fund agreement, the fees charged are collected by the State. The arrangements for service are between the State and the individual firms and concurred in by the Federal service. AMS is reimbursed by the cooperating agency for Federal supervision of the program. Under the Federal Trust Fund agreement, the applications for service are between AMS and the individual firms. The fees are collected by the Federal agency and the State is paid the costs it incurs performing grading work and supervision.

Official Identification Marks for Ready-to-Cook Poultry

The U.S. consumer grades are applicable only to poultry and poultry products which have been graded on an individual carcass or part basis by a grader or by authorized personnel working under the supervision of a grader. The U.S. procurement grades are generally applied when the poultry has been graded on the basis of an examination of a prescribed sample of the lot.

The official circular inspection mark (fig. 1) is required on immediate containers and shipping containers of poultry inspected under the Poultry Products Inspection Act.

The grademark must be one of the forms and designs illustrated in figures 2 and 3, and must be printed with light-colored letters on a dark field.

Any wing tag, metal clip, insert label, or other label which bears either the inspection mark or grademark or both must also show either the plant number or the firm name and address.

Wing tags and metal clips, bearing the grademark must show the class of the product. The class name can be the appropriate individual class or the classes can be grouped according to the following system:

Name	Poultry to be packed thereunder
Young poultry	Young birds of any kind
Mature poultry	Mature or old birds of any kind
Young chicken	Roasters and other young chickens
Stewing chicken	Fowl, baking hens, chicken hens
Young turkey	Young hens, young toms and fryer-roaster turkeys
Yearling turkey	Yearling hen turkeys, yearling tom turkeys
Duckling	Broiler ducklings, roaster ducklings
Mature duck	Old ducks

The name of the *kind*, such as chicken, turkey or duck, without the qualifying term young,

mature, or old, or the class name, is not permitted.

Figures 4, 5, and 6 show examples of satisfactory wing tags. When both marks are shown on a tag, they must appear on the same side of the tag. Both marks may appear on each side of the tag. Wing tags of shield design may not be used for showing the inspection mark only, but may be used to show both marks, or the grademark only.

On multiple-bird ice packs, when the grade-mark appears on a tag or clip without the inspection mark (fig. 7), the inspection mark must be printed on the giblet wrapper and packed with the bird. If the tag or clip does not show the plant number (fig. 8), then the plant number must be shown on the giblet wrapper.

Labels bearing official identification *may not* be printed until the printer's proof or a photostatic copy has been found acceptable by APHIS and AMS.

Use of the letters "U.S." or "USDA" in connection with poultry grade marks if the poultry has not been graded by an authorized grader violates Public Law 272. This law provides penalties for false representation that an agricultural product has been officially graded.

FORMS OF OFFICIAL IDENTIFICATION FOR READY-TO-COOK POULTRY



Figure 1.—Inspection mark.



Figure 2.—Grade mark.



Figure 3.—Grade mark.

EXAMPLES OF LABELS BEARING INSPECTION AND GRADE MARKS



Figure 4



Figure 5



Figure 6

METAL WING CLIPS



Figure 7



Figure 8

GRADING READY-TO-COOK POULTRY AND POULTRY FOOD PRODUCTS

Ready-to-cook poultry is graded for class, condition, and quality. This section provides the following information:

- (a) An outline of the factors that are combined to determine the final grade of an individual ready-to-cook bird or part, or a lot of ready-to-cook birds or parts.
- (b) A list of factors that exclude ready-to-cook poultry from any grade.
- (c) An outline and illustration of how to cut parts according to USDA poultry regulations.
- (d) An illustration of a grade standard for a specified poultry food product.

Determining Condition

Most ready-to-cook birds are graded in processing plants following evisceration. The relatively few birds graded elsewhere must be in a form which makes it possible to examine the entire carcass. Frozen poultry, for example, cannot be initially graded at a terminal market because the carcasses are not entirely visible.

Decomposition (slimy or slippery condition of the skin, or putrid or sour odor) makes ready-to-cook products ineligible for grading.

In addition, ready-to-cook birds showing certain other conditions cannot be graded. Such birds must be sent back for further processing if grading is done at the processing plant. When grading is performed elsewhere, the number of birds found with these conditions would be recorded, and the lot would be classified as "No Grade." These conditions are:

- a. Protruding pinfeathers.
- b. Bruises requiring trimming.
- c. Lungs or sex organs incompletely removed.
- d. Parts of the trachea present.
- e. Vestigial feathers.
- f. Feathers.
- g. Extraneous material of any type inside or outside of the carcass (for example, fecal material, blood, etc.).

Since determination of factors which indicate

the presence of disease is made by inspectors before the birds reach the grader, these factors are not discussed.

Determining Quality

It is necessary to determine the class of the individual bird before evaluating the quality factors. The quality factors of fat, fleshing, and conformation vary with the age and sex of the bird.

The tolerances for certain dressing defects vary with the weight of the ready-to-cook carcass. The tolerances also vary depending upon whether they are on the breast and legs or elsewhere on the carcass.

The grader must be sure that the condition of the bird is such that a standard of quality may be applied. The conditions which preclude application of a standard of quality have been outlined earlier in this section.

When the class and condition have been determined, each quality factor must be evaluated. The final quality rating of the bird is based on the factor with the lowest rating. Thus, if a bird meets the requirements for A quality in all factors except one, and this factor is of B quality, the final grade designation would be "B."

In interpreting the respective requirements for A quality, B quality, and C quality, the intensity, aggregate area, and location of the defects must be evaluated. Defects to be considered are: discolorations, bruises, exposed flesh, pinfeathers, and freezing defects. The tolerance in each quality for each defect is the maximum permitted. How the intensity, aggregate area, location, and number of defects affect the appearance of the bird will determine if the maximum tolerance can be used.

The following factors must be considered in determining the quality of an individual ready-to-cook carcass or part.

Conformation

The structure of the bird determines to a considerable degree the distribution and amount of meat. Certain defects in structure detract from the sales appeal of the carcass. Some of the defects that should be noted are breasts that are dented, crooked, knobby, V-shaped, or slabsided; backs that are narrow, crooked, or hunched; legs and wings that are deformed; and bodies that are definitely wedge-shaped.

Fleshing

The drumsticks, thighs, and breast carry the bulk of the meat. There is, however, a definite correlation between the covering of the flesh over the back and the amount of flesh on the rest of the carcass. Females almost invariably carry more flesh over the back and will generally have a more rounded appearance to the breast, thighs, and legs.

The common defects in fleshing are breasts that are V-shaped, or concave, rather than full and rounded; breasts that are full near the wishbone but taper sharply to the rear; legs and drumsticks which are thin; and backs that have insufficient flesh to cover the vertebrae and hip bones.

Fat

Fat in poultry is judged entirely by accumulation under the skin. This is true even for chicken parts. Accumulations occur first around the feather follicles in the heavy feather tracts. Poorly fatted birds may have some accumulation of fat in the skin along the heavy feather tracts on the breast. As the bird progresses in "finish," accumulations will be noted at the juncture of the wishbone and keel and where the thigh skin joins the breast skin. At the same time accumulations will be noted around the feather follicles between the heavy feather tracts and over the back and hips. Well-finished older birds will have sufficient fat in these areas and over the drumsticks and thighs so that the flesh is difficult to see. Fowl which have stopped laying have a tendency to take on excessive fat in the abdominal area. Well-finished young birds will have less fat under the skin between the heavy feather tracts on the breast and over the drumsticks and thighs than mature birds. It should be noticeable, however.

Pinfeathers

Processors try to eliminate the problem of pinfeathers, particularly those just coming through the skin, by timing their purchases to coincide with completed feathering cycles. There is, for instance, a very short period within which the slaughtering of ducklings must be done. With other classes, the period is longer and attention is given primarily to noting if the bulk of the pins have sufficient brush on them to facilitate picking.

Two types of pinfeathers are considered in grading—protruding and nonprotruding. Pro-

truding pinfeathers have broken through the skin and may or may not have formed a brush. Nonprotruding pinfeathers are evident but have not pushed through the outer layer of skin.

Before a quality designation can be assigned, ready-to-cook poultry must be free of protruding pinfeathers that are visible to a grader during examination of the carcass at normal operating speeds. However, a carcass may be considered as being free from protruding pinfeathers if it has a generally clean appearance (especially on the breast), and if not more than an occasional protruding pinfeather is in evidence during a more careful examination of the carcass.

Vestigial feathers, hair on chickens, turkeys, guineas and pigeons, and down on ducks and geese must also be considered.

Exposed Flesh, Cuts, Tears, and Broken Bones

Exposed flesh, resulting from cuts, tears, missing skin, broken or disjointed bones, detracts from the appearance of the bird and lowers the quality. Tears and missing skin permit the flesh to dry out during the cooking process, thus lowering the eating quality of the bird. The number and extent of such defects permitted depend on their location, whether on the breast or elsewhere on the carcass.

Skin Discolorations and Flesh Blemishes and Bruises

Most poultry is sold either ice-packed or wrapped in a water-resistant material. Either method prevents air from reaching and drying out areas from which the outer cuticle has been removed. The result has been that much poultry is scalded at temperatures around 140°F., and all of the cuticle is removed. This facilitates removal of pinfeathers and cuts down operating costs. Abrasions do not become a problem unless the poultry has been exposed to the air, in which case the abrasions dry out and become discolored. If this has occurred at the time of the examination, the size of the areas is taken into consideration as a discoloration.

Bruises in the flesh or skin are permitted only to the extent that there is no coagulation or clotting (discernible clumps of red cells). Small clots in the skin or on the surface of the flesh may be cut to allow them to leach out in the chilling process. Such cuts would be taken into consideration in determining the quality. Blue

or green bruises must be removed before grading. Excessive grade loss because of bruises should be called to the attention of the management.

Turkeys, most frequently older birds, may have discolored areas over the back and wings and sometimes elsewhere. This condition, which is commonly called "blue back," may be caused by fluid normally confined to the feather quills moving into the skin or it may be a condition known as dermal melanosis, which is genetic. A similar color is often found on the base of the keel associated with breast callosities. Certain varieties of chickens have a bluish or bluish-green color in the body lining. These discolorations detract from the appearance and are included in the total aggregate areas permitted for discolorations.

The skin of frozen poultry often shows a condition known as "box burn." This shows up as a white area where the skin has come in contact with the lining of the box. The outer cuticle is the only part affected. This condition should not be confused with that of freezer burn. In grading, box burns would be included under discolorations.

Freezing Defects

Discoloration and drying out of the skin of poultry carcasses during storage is commonly called "freezer burn." This defect detracts from the appearance and sales value of the carcass, and in the case of either moderate or severe freezer burn, lowers the quality of it.

In addition to freezer burn, other freezing defects of significance in establishing the grade of consumer-packaged poultry, parts, or specified poultry food products are darkening of the carcass due to slow freeze or defrosting; and, in the case of consumer-packaged poultry or parts, seepage of moisture from the product, resulting in clear, pinkish, or reddish layers of ice.

Examining Birds and Parts

The grading area should be illuminated by at least 50-foot candles and should be located where cross-traffic and distracting noises are at a minimum. The grader should have the bird at a distance from his eye approximating that used for reading. Graders who require glasses for reading should use them in grading since minute pinfeathers, hairs, and small wet feath-

ers are particularly hard to see on white feathered birds.

It is necessary to examine all parts of the bird before making a final decision on the quality. The usual procedure is to decide on the fleshing and fat cover factors first. This makes it easier to decide on the other factors. For example, a poorly fleshed bird needs to be examined only for portions of the carcass which might have defects such as discolorations or exposed flesh.

When birds are graded out of bins, the poultry carcass is examined by grasping the hocks of the bird in one hand with the breast up. In this position, the grader can easily observe the breast, wings, and legs, and by a mere twist of the wrist the back of the bird can be turned into position to be observed. The various quality factors are appraised and the bird is placed in the proper grade bin.

When birds on a conveyor line are graded, the side of the bird nearest the grader is examined first. The carcass is then turned around so that the opposite side can be examined. In some instances, the birds are removed as they are graded and placed in the various quality bins or cooling tanks. In other instances, only A quality carcasses are removed and others are taken off the conveyor line later, or the lower quality carcasses are removed and only Grade A carcasses remain on the conveyor line.

The procedures for grading ready-to-cook poultry carcasses on a conveyor belt also apply to the grading of parts.

Poultry carcasses and parts cannot be given a consumer grade unless each carcass or each part is visible. Frozen poultry carcasses or parts may not be graded unless the product has been graded when fresh and identified with the appropriate grademark. Grading frozen poultry carcasses or parts is generally a condition examination to determine that the product has maintained its original quality and does not have freezing defects. Frozen poultry carcasses or parts, which were not graded in a fresh state and which are packed so that the entire carcass or part can be observed, may be graded and the lot assigned a procurement grade.

Box-packed poultry is usually graded at terminal markets and generally on the basis of a representative sample drawn from a bulk lot.

Proficient graders can evaluate the carcass at a glance, keeping in mind each of the quality factors, and make split-second decisions on these factors and place the carcasses in the various quality grades.

Standards of Quality for Ready-To-Cook Poultry

A Quality

CONFORMATION. The carcass or part is free of deformities that detract from its appearance or that affect the normal distribution of flesh. Slight deformities such as slightly curved or dented breastbones and slightly curved backs may be present.

FLESHING. The carcass has a well-developed covering of flesh considering the kind, class, and part.

(1) The breast is moderately long and deep and has sufficient flesh to give it a rounded appearance with the flesh carrying well up to the crest of the breastbone along its entire length.

(2) The leg is well fleshed and moderately thick and wide at the knee and hip joint area and has a well-rounded, plump appearance with the flesh carrying well down toward the hock and upward to the hip joint area.

(3) The drumstick is well fleshed and moderately thick and wide at the knee joint and has a well-rounded, plump appearance with the flesh carrying well down toward the hock.

(4) The thigh is well to moderately fleshed.

(5) The wing is well to moderately fleshed.

FAT COVERING. The carcass or part, considering the kind, class and part, has a well-developed layer of fat in the skin. The fat is well distributed so that there is a noticeable amount of fat in the skin in the areas between the heavy feather tracts.

DEFEATHERING. The carcass or part has a clean appearance, especially on the breast. The carcass or part is free of pinfeathers, diminutive feathers, and hair visible to the grader.

EXPOSED FLESH. Parts are free of exposed flesh resulting from cuts, tears, and missing skin (other than slight trimming on the edge). The carcass is free of these defects on the breast and legs. Elsewhere the carcass may have exposed flesh due to slight cuts, tears, and areas of missing skin, providing the aggregate of the areas of flesh exposed does not exceed the area of a circle of the diameter as specified in table 1.

TABLE 1. Exposed flesh, A quality.

Carcass weight		Maximum aggregate area permitted	
Minimum	Maximum	Breast & Legs	Elsewhere
None	1 lb. 8 oz.	None	¼ inch
Over 1 lb. 8 oz.	6 lbs.	None	1½ inches
Over 6 lbs.	16 lbs.	None	2 inches
Over 16 lbs.	None	None	3 inches

DISJOINTED AND BROKEN BONES AND MISSING PARTS. Parts are free of broken bones. The carcass is free of broken bones and has not more than one disjointed bone. The wing tips may be removed at the joint and, in the case of ducks and geese, the parts of the wing beyond the second joint may be removed if removed at the joint and both wings are so treated. The tail may be removed at the base. Cartilage separated from the breastbone is not considered as a disjointed or broken bone.

DISCOLORATIONS OF THE SKIN AND FLESH. The carcass or part is practically free of such defects. Discoloration due to bruising shall be free of clots (discernible clumps of red or dark cells). Evidence of incomplete bleeding, such as more than an occasional slightly reddened feather follicle, is not permitted. Flesh bruises and discolorations of the skin such as blue back are not permitted on the breast or legs of the carcass or on these individual parts and only lightly shaded discolorations are permitted elsewhere. The total areas affected by flesh bruises, skin bruises, and discolorations such as blue back singly or in any combination shall not exceed one-half of the total aggregate area of permitted discoloration. The aggregate area of all discolorations for a carcass or a part therefrom shall not exceed the area of a circle of the diameter as specified in table 2.

TABLE 2. Discolorations, A quality.

Carcass weight		Maximum aggregate area permitted		
Minimum	Maximum	Breast & Legs	Elsewhere	Part
None	1 lb. 8 oz.	¼ inch	1 inch	¼ inch
Over 1 lb. 8 oz.	6 lbs.	1 inch	2 inches	¼ inch
Over 6 lbs.	16 lbs.	1½ inches	2½ inches	½ inch
Over 16 lbs.	None	2 inches	3 inches	½ inch

FREEZING DEFECTS. With respect to consumer-packaged poultry, parts or specified poultry food products, the carcass, part, or specified poultry food product is practically free from defects which result from handling or occur during freezing or storage. The following defects are permitted if they, alone or in combination, detract only very slightly from the

appearance of the carcass, part, or specified poultry food product:

(1) Slight darkening over the back and drumsticks provided the frozen bird or part has a generally bright appearance;

(2) Occasional pockmarks due to drying of the inner layer of skin (derma); however, none may exceed the area of a circle $\frac{1}{8}$ inch in diameter for poultry weighing 6 pounds or less, and $\frac{1}{4}$ inch in diameter for poultry weighing over 6 pounds;

(3) Occasional small areas showing a thin layer of clear or pinkish colored ice.

B Quality

CONFORMATION. The carcass or part may have moderate deformities, such as a dented, curved or crooked breast, or crooked back, or misshapen legs or wings which do not materially affect the distribution of flesh or the appearance of the carcass or part.

FLESHING. The carcass or part has a moderate covering of flesh considering the kind, class, and part.

(1) The breast has a substantial covering of flesh with the flesh carrying up to the crest of the breastbone sufficiently to prevent a thin appearance.

(2) The leg is fairly thick and wide at the knee and hip joint area and has sufficient flesh to prevent a thin appearance.

(3) The drumstick has a sufficient amount of flesh to prevent a thin appearance with the flesh carrying fairly well down toward the hock.

(4) The thigh has a sufficient amount of flesh to prevent a thin appearance.

(5) The wing has a sufficient amount of flesh to prevent a thin appearance.

FAT COVERING. The carcass or part has sufficient fat in the skin to prevent a distinct appearance of the flesh through the skin, especially on the breast and legs.

DEFEATHERING. The carcass or part may have a few nonprotruding pinfeathers or vestigial feathers which are scattered sufficiently so as not to appear numerous. Not more than an occasional protruding pinfeather or diminutive feather shall be in evidence under a careful examination.

EXPOSED FLESH. Parts may have exposed flesh resulting from cuts, tears, and missing skin, provided that not more than a moderate amount of the flesh normally covered by skin is

exposed. The carcass may have exposed flesh resulting from cuts, tears, and missing skin, provided that the aggregate of the areas of flesh exposed does not exceed the area of a circle of the diameter as specified in table 3.

TABLE 3. Exposed flesh, B quality.

Carcass weight		Maximum aggregate area permitted	
Minimum	Maximum	Breast & Legs	Elsewhere
None	1 lb. 8 oz.	$\frac{1}{2}$ inch	$1\frac{1}{2}$ inches
Over 1 lb. 8 oz.	6 lbs.	$1\frac{1}{2}$ inches	3 inches
Over 6 lbs.	16 lbs.	2 inches	4 inches
Over 16 lbs.	None	3 inches	5 inches

Notwithstanding the foregoing, a carcass meeting the requirements of A Quality for fleshing may be trimmed to remove skin and flesh defects, provided that no more than one-third of the flesh is exposed on any part and the meat yield of any part is not appreciably affected.

DISJOINTED AND BROKEN BONES AND MISSING PARTS. Parts may be disjointed but are free of broken bones. The carcass may have two disjointed bones or one disjointed bone and one nonprotruding broken bone. Parts of the wing beyond the second joint may be removed at a joint. The tail may be removed at the base. The back may be trimmed in an area not wider than the base of the tail and extending from the tail to the area half way between the base of the tail and the hip joints.

DISCOLORATIONS OF THE SKIN AND FLESH. The carcass or part is free of serious defects. Discoloration due to bruising shall be free of clots (discernible clumps of red or dark cells). Evidence of incomplete bleeding shall be no more than very slight. Moderate areas of discoloration due to bruises in the skin or flesh and moderately shaded discoloration of the skin such as blue back are permitted, but the total areas affected by such discolorations singly or in any combination may not exceed one-half of the total aggregate area of permitted discoloration. The aggregate area of all discolorations for a carcass or a part therefrom shall not exceed the area of a circle of the diameter as specified in table 4.

TABLE 4. Discolorations, B quality.

Carcass weight		Maximum aggregate area permitted			
Minimum	Maximum	Breast & Legs	Elsewhere	Part	
None	1 lb. 8 oz.	1 inch	2 inches	$\frac{1}{2}$ inch	
Over 1 lb. 8 oz.	6 lbs.	2 inches	3 inches	1 inch	
Over 6 lbs.	16 lbs.	$2\frac{1}{2}$ inches	4 inches	$1\frac{1}{2}$ inches	
Over 16 lbs.	None	3 inches	5 inches	$1\frac{1}{2}$ inches	

FREEZING DEFECTS. With respect to consumer-packaged poultry, parts, or specified poultry food products, the carcass, part, or specified poultry food product may have moderate defects which result from handling or occur during freezing or storage. The skin and flesh shall have a sound appearance but may lack brightness. The carcass or part may have a few pockmarks due to drying of the inner layer of skin (derma). However, no single area of overlapping pockmarks may exceed that of a circle $\frac{1}{2}$ inch in diameter. Moderate areas showing layers of clear pinkish or reddish colored ice are permitted.

C Quality

(a) A part that does not meet the requirements for A or B quality may be of C quality if the flesh is substantially intact.

(b) A carcass that does not meet the requirements for A or B Quality may be C Quality. Both wings may be removed or neatly trimmed. Trimming of the breast and legs is permitted, but not to the extent that the normal meat yield is materially affected. The back may be trimmed in an area not wider than the base of the tail and extending from the tail to the area between the hip joints.



Figure 9.—Ready-to-cook young chickens (left to right) A quality, B quality. (Negative Nos. N-17183, N-17184.)

Poultry Parts

Poultry parts have become increasingly popular with the consumer. Some people prefer all white meat, and the all breast pack serves this need. For those who prefer all dark meat, drumsticks, thighs, or whole leg packs serve the purpose. Parts are versatile. They are especially popular in specialty dishes and are ideal for barbecuing.

This section illustrates the skeleton of the bird (fig. 12) and the points where parts are cut in accordance with the USDA regulations (fig. 13). Various parts are also illustrated.

A ready-to-cook carcass which has a defect may be graded after the defective portion has been removed. The fact that a portion of the carcass has been removed will not be considered in determining the quality of the balance of the carcass if the remaining portion of the carcass is to be disjointed and packed as parts in the official plant where graded.

In 1969, specific grade standards were established for poultry parts and provision was made in the poultry grading standards to grade parts after they have been cut from the carcass, providing the class is known and the parts are not misshapen or have nearly the same appearance as they had prior to cutting from the

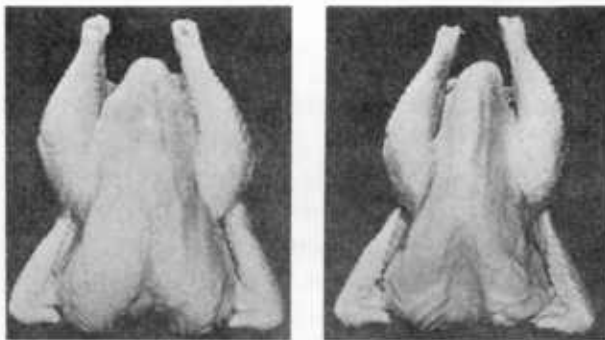


Figure 10.—Ready-to-cook hen, stewing chicken or fowl (left to right) A quality, B quality. (Negative Nos. BN-2203, BN-2204.)

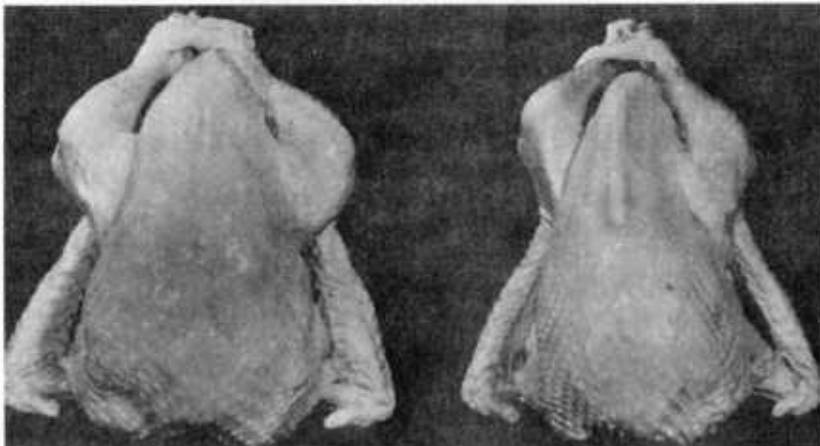


Figure 11.—Ready-to-cook young turkeys (left to right) A quality, B quality. (Negative No. BN-16968.)

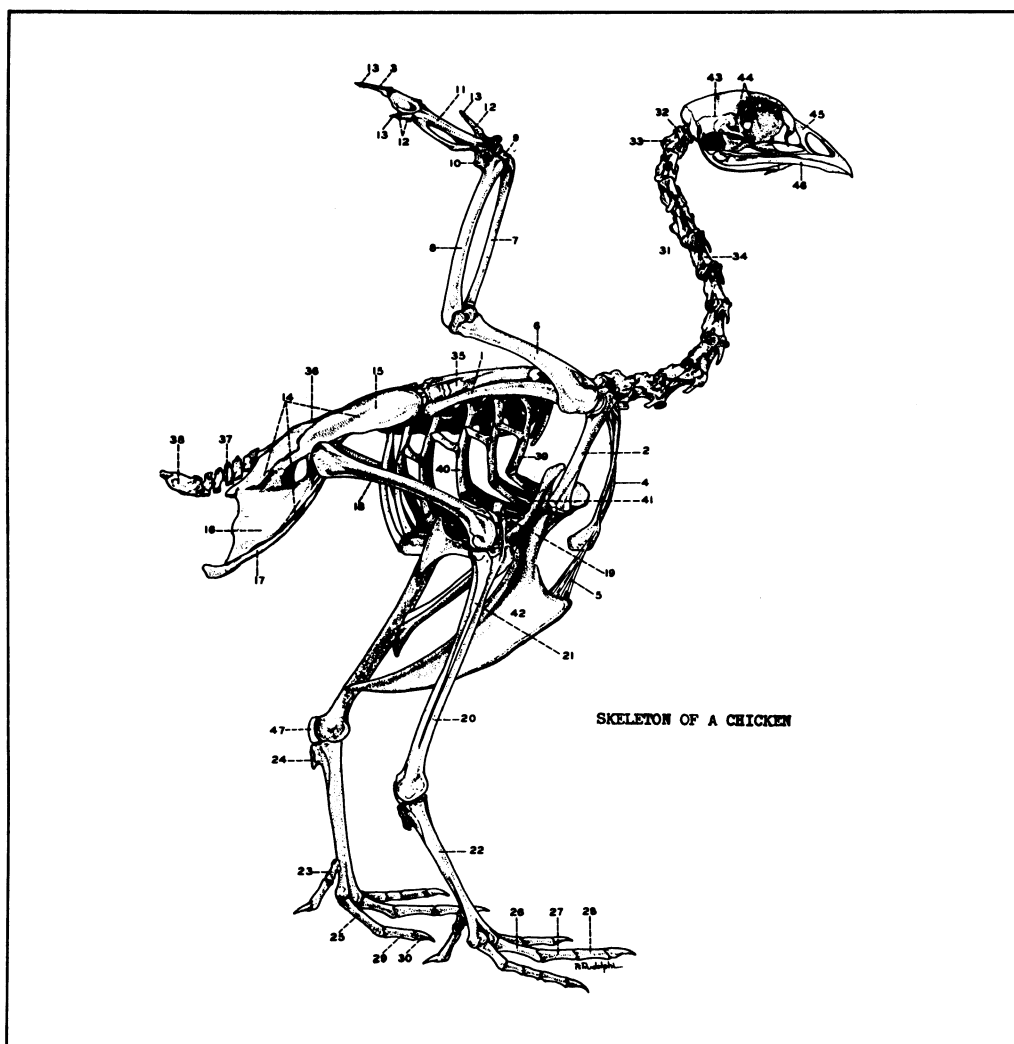


Figure 12.—Skeleton of the chicken. (Negative No. BN- 25156.)

- | | | |
|--------------------------------|---|--|
| 1. Scapula | 18. Femur | 32. Atlas - first cervical |
| 2. Coracoid | 19. Patella - Knee Cap | 33. Axis - Second cervical |
| 3. Second phalanx, third digit | 20. Tibia | 34. Cervical vertebrae |
| 4. Clavicle - Wishbone | 21. Fibula | 35. Thoracic vertebrae |
| 5. Hypocledial ligament | 22. Tarsometatarsus (second, third and fourth) | 36. Synsacrum |
| 6. Humerus | 23. First Metatarsal | 37. Coccygeal vertebrae |
| 7. Radius | 24. Hypotarsal ridge | 38. Urostyle - Pygostyle |
| 8. Ulna | 25. First phalanx, second digit | 39. Second rib |
| 9. Radial carpal | 26. First phalanx, third digit | 40. Vertebral rib portion |
| 10. Ulnar carpal | 27. Second phalanx, third digit | 41. Sternal rib portion |
| 11. Third carpometacarpal | 28. Third phalanx, third digit | 42. Sternum - keelbone |
| 12. First phalanges | 29. Second phalanx, second digit | 43. Vertebral cranium (lateral parietal crest) |
| 13. Distal phalanges | 30. Distal phalanx, second digit | 44. Orbital fossa |
| 14. Os innominatum | 31. Region of the ligamentum nuchae (Main ligament of the neck) | 45. Visceral cranium (lateral ramus of nasal bone) |
| 15. Ilium | | 46. Mandibula (mandible, lower jaw) |
| 16. Ischium | | 47. Hypotarsal sesamoid |
| 17. Pubium - Pinbone | | |

carcass. Specific requirements for parts are set forth in the preceding "Fleshing" categories for Grade A and Grade B ready-to-cook poultry.

The USDA standards of quality are applicable to poultry parts cut in the manner described in the following paragraphs or in some other

manner when approved by the Administrator. In addition, grade standards have been established for A, B, and C quality poultry backs depending upon the manner in which they are cut. These standards are indicated in the section on backs.

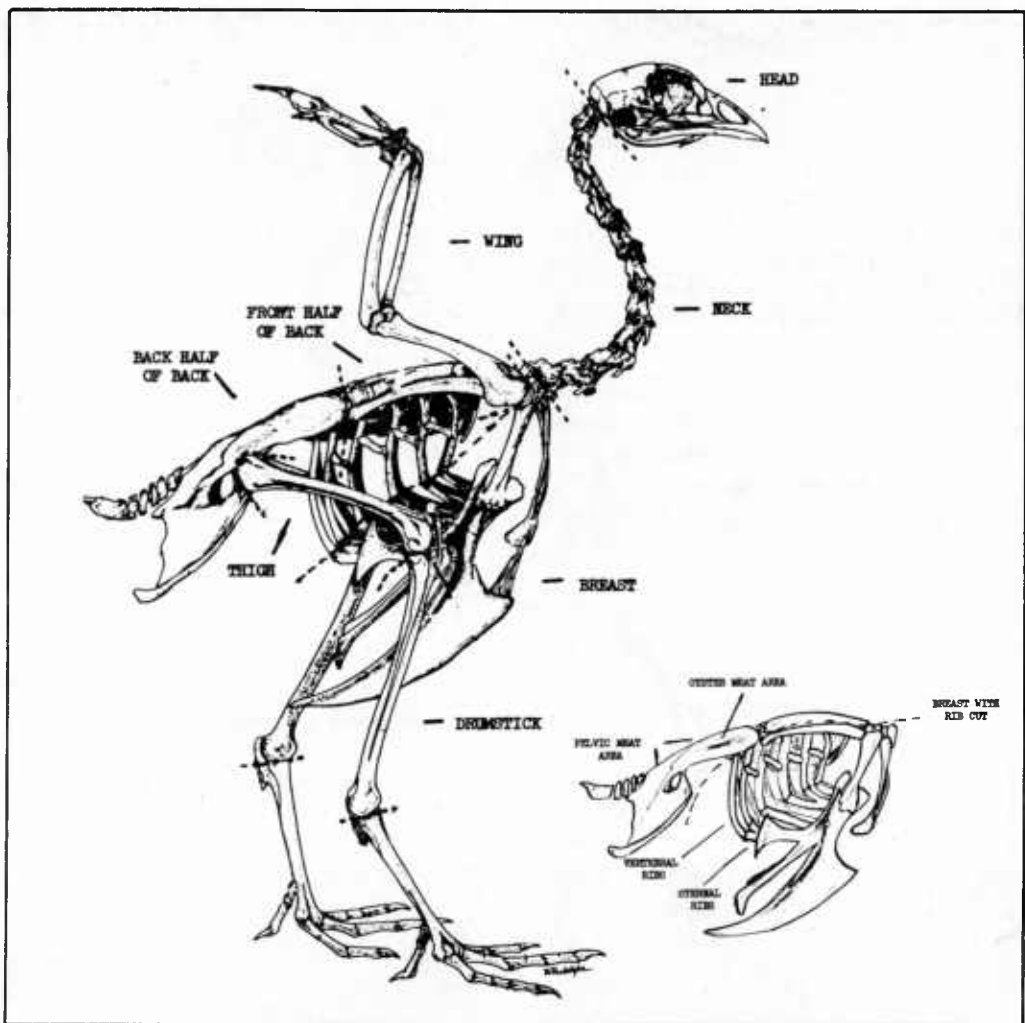


Figure 13.—(Upper) Skeleton of chicken indicating points to sever parts. (Lower) Illustration of rib and pelvic meat areas and breast with ribs.



Figure 14.—Breast: (a) external view; (b) internal view illustrating proper cut. (Negative Nos. N-56596, N-55827)

Breasts (fig. 14) are separated from the back at the shoulder joint and by a cut running backward and downward from that point along the junction of the vertebral and sternal ribs. The ribs may be removed from the breasts, and the breasts may be cut along the breastbone to make two approximately equal halves; or the wishbone portion as described later in this

section, may be removed before cutting the remainder along the breastbone to make three parts. Pieces cut in this manner may be substituted for lighter or heavier pieces for exact weight-making purposes and the package may contain two or more of such parts without affecting the appropriateness of the labeling as "chicken breasts." Neck skin is not included.

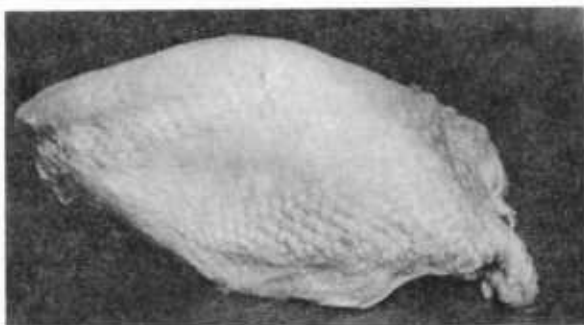


Figure 15.—Breast with ribs. (Negative No. N-55826.)

Breasts with ribs (fig. 15) are separated from the back at the junction of the vertebral ribs and back. Breasts with ribs may be cut along the breastbone to make approximately two halves; or the wishbone portion may be removed before cutting the remainder along the breastbone to make three parts. Pieces cut in this manner may be substituted for lighter or heavier pieces for exact weight-making purposes and the package may contain two or more of such parts without affecting the appropriateness of the labeling as "breasts with ribs." Neck skin is not included.



Figure 16.—Wishbone. (Negative No. N-56595.)

Wishbones (pulley bones), with covering muscle and skin tissue (fig. 16), are severed from the breast approximately halfway between the end of the wishbone (hypsocledium) and front point of the breastbone (cranial process of the sternal crest) to a point where the wishbone joins the shoulder. Neck skin is not included.



Figure 17.—Leg (a); leg with pelvic meat (b). (Negative Nos. N-55839, N-55836.)



Figure 18.—Drumstick on left, thigh on right. (Negative No. N-56589.)

Legs include the whole leg, i.e., the thigh and the drumstick (fig. 17a), whether jointed or disjointed. Back skin is not included. Pelvic meat may be attached to the thigh but shall not include the pelvic bones (fig. 17b).

Drumsticks are separated from the thigh by a

cut through the knee joint (femorotibial and patellar joint) and from the hock joint (tarsal joint) (fig. 18).

Thighs are disjointed at the hip joint and may include the pelvic meat but shall not include the pelvic bones. Back skin is not included.



Figure 19.—Wing. (Negative No. N-55844.)

Wings include the entire wing with all muscle and skin tissue intact, except that the wing tip may be removed (fig. 19).



Figure 20.—Half. (Negative No. N-56599.)

Halves are prepared by making a full-length back and breast split of the carcass so as to produce approximately equal right and left sides (fig. 20).



Figure 21.—Quarters. (Negative No. N-56586.)

Quarters (fig. 21) are prepared by splitting the carcass as specified under "halves" in this section, with the resulting halves cut crosswise at almost right angles to the backbone so as to form quarters.

Backs (fig. 22) include the pelvic bones and all the vertebrae posterior to the shoulder joint. The meat may not be peeled from the pelvic bones. The vertebral ribs and/or scapula may be removed or included. Skin shall be substantially intact.

A Quality backs shall meet all applicable provisions pertaining to parts and shall include the meat contained on the ilium (oyster), pelvic meat and skin and vertebral ribs and scapula with meat and skin.

B Quality backs shall meet all applicable provisions pertaining to parts and shall include either the meat contained on the ilium (oyster) and meat and skin from the pelvic bones or the vertebral ribs and scapula with meat and skin.

C Quality backs shall include the meat and skin from the pelvic bones except that the meat contained on the ilium (oyster) may be removed. The vertebral ribs and scapula with meat and skin may also be removed, but the remaining portion must have the skin substantially intact.



Figure 22.—(a) Back with pelvic meat and vertebral ribs; (b) back with meat contained on the ilium (oyster) removed; (c) back with meat contained on the ilium (oyster) and vertebral ribs removed. (Negative Nos. N-55830, N-55833, N-55834.)

Poultry Food Products

In the past few years, numerous frozen poultry pies and dinners have appeared on the market. Recently, other poultry food products such as specialty dishes containing poultry and raw and cooked poultry rolls and roasts have made their appearance.

The standard for Grade A poultry roasts, shown below, is the first grade standard for a poultry food product. As meaningful quality factors are established for other products and the need arises for grade standards for them, standards will be developed

Poultry Roast—A Quality.

The standard of quality contained in this section is applicable to raw poultry products labeled in accordance with the poultry inspection regulations as ready-to-cook "Rolls," "Roasts," or with words of similar import.

(a) The deboned poultry meat used in the preparation of the product shall be from young poultry of A quality with respect to fleshing and fat covering.

(b) All tendons, cartilage, large blood vessels, blood clots, and discolorations shall be trimmed from the meat.

(c) All pinfeathers, bruises, hair, discolorations and blemishes shall be removed from the skin, and where necessary, excess fat shall be removed from the skin covering the crop area or other areas.

(d) Seventy-five percent or more of the outer surface of the product shall be covered with the skin, whether attached to the meat or used as a wrap. The skin shall not appreciably overlap at any point. The combined weight of the skin and fat used to cover the outer surface and that used as a binder shall not exceed 15 percent of the total net weight of the product.

(e) The product shall be fabricated in such a manner that each slice remains substantially intact (does not separate into more than three parts) when sliced warm after cooking. This may be accomplished by use of large pieces of poultry or by use of approved binders.

(f) Seasoning or flavor enhancers, if used, shall be uniformly distributed.

(g) Product shall be fabricated or tied in such a manner that it will retain its shape after defrosting and cooking.

(h) Packaging shall be neat and attractive.

(i) Product shall be practically free of

weepage after packaging and/or freezing and, if frozen, shall have a bright, desirable color.

(j) Product packaged in an oven-ready container shall meet all the requirements of paragraphs (a) through (i) of this section, except that with respect to skin covering, the exposed surface of the roast need not be covered with skin. If skin is used to cover the exposed surface, it may be whole or emulsified. Additionally, for roasts packaged in oven-ready containers, comminuted (mechanically deboned) meat may be substituted in part for skin, but may not exceed 8 percent of the total weight of the product.

Boneless Poultry Breast and Thigh—A Quality

The standards of quality contained in this section are applicable to raw poultry products labeled as ready-to-cook boneless poultry breasts or thighs or as ready-to-cook boneless poultry breast fillets or thigh fillets, or with words of similar import.

(a) The breast or thigh shall be cut as specified in figures 14 or 18, respectively.

(b) Prior to deboning, the breast or thigh shall meet the A quality requirements for ready-to-cook poultry parts as specified on pages 8-9.

(c) The bone or bones shall be removed in a neat manner without undue mutilation of adjacent muscle.

Grades

Provision is made in the U.S. Department of Agriculture regulations for consumer and procurement grades. The title assigned to each type of grade is indicative of its place in the marketing channel.

U. S. Consumer Grades for Ready-to-Cook Poultry

The United States consumer grades for ready-to-cook poultry are applicable when each carcass or part has been individually graded.

U.S. GRADE A

A lot of ready-to-cook poultry or parts consisting of one or more ready-to-cook carcasses or parts of the same kind and class, each of which conforms to the requirements for A quality, may be designated as U.S. Grade A.

U.S. GRADE B

A lot of ready-to-cook poultry or parts consisting of one or more ready-to-cook carcasses or parts of the same kind and class, each of which conforms to the requirements for B quality or better, may be designated as U.S. Grade B.

U.S. GRADE C

A lot of ready-to-cook poultry or parts consisting of one or more ready-to-cook carcasses or parts of the same kind and class, each of which conforms to the requirements for C quality or better, may be designated as U.S. Grade C.

U.S. Procurement Grades for Ready-to-Cook Poultry

The United States procurement grades for ready-to-cook poultry are applicable to carcasses of ready-to-cook poultry when graded as a lot on the basis of an examination of each carcass in the lot or each carcass in a representative sample.

U.S. PROCUREMENT GRADE I

Any lot of ready-to-cook poultry composed of one or more carcasses of the same kind and class may be designated and identified as U.S. Procurement Grade I when: (A) 90 percent or more of the carcasses in such lot meet the

requirements of A quality, with the following exceptions: (1) fat covering and conformation may be as described in this manual for B quality; (2) trimming of skin and flesh to remove defects is permitted to the extent that not more than one-third of the flesh is exposed on any part and the meat yield of any part is not appreciably affected; (3) discoloration of the skin and flesh may be as described in this manual for B quality; (4) one or both drumsticks may be removed if the part is severed at the joint; (5) the back may be trimmed in an area not wider than the base of the tail and extending to the area between the hip joints; (6) the wings or parts of wings may be removed if severed at a joint; (B) the balance of the carcasses meet the same requirements, except they may have only a moderate covering of flesh.

U.S. PROCUREMENT GRADE II

Any lot of ready-to-cook poultry of the same kind and class which fails to meet the requirements of U.S. Procurement Grade I may be designated and identified as U.S. Procurement Grade II provided that (a) trimming of flesh from any part does not exceed 10 percent of the meat; (b) portions of a carcass weighing not less than one-half of the whole carcass may be included if the portion approximates in percentage the meat to bone yield of the whole carcass.

SUMMARY OF SPECIFICATIONS OF QUALITY FOR INDIVIDUAL CARCASSES OF READY-TO-COOK POULTRY AND PARTS THEREFROM (Minimum Requirements and Maximum Defects Permitted)

FACTOR	A QUALITY			B QUALITY			C QUALITY
CONFORMATION Breastbone Back Legs and Wings	Normal Slight curve or dent Normal (except slight curve) Normal			Moderate deformities Moderately dented, curved or crooked Moderately crooked Moderately misshapen			Abnormal Seriously curved or crooked Seriously crooked Misshapen
FLESHING	Well fleshed, moderately long, deep and rounded breast			Moderately fleshed, considering kind, class and part			Poorly fleshed
FAT COVERING	Well covered—especially between heavy feather tracts on breast and considering kind, class and part			Sufficient fat on breast and legs to prevent distinct appearance of flesh through the skin			Lacking in fat covering over all parts of carcass
PINFEATHERS Nonprotruding pins and hair Protruding pins	Free Free			Few scattered Free			Scattering Free
EXPOSED FLESH ¹ Carcass Weight Minimum Maximum	Breast and Legs	Elsewhere	Part	Breast and Legs ²	Elsewhere ²	Part	No Limit
None 1½ lbs.	None	¾"	Slight trim	¾"	1½"	Moderate	
Over 1½ lbs. 6 lbs.	None	1½"	on edge	1½"	3"	amount of the	
Over 6 lbs. 16 lbs.	None	2"		2"	4"	flesh nor-	
Over 16 lbs. None	None	3"		3"	5"	mally covered	
DISCOLORATIONS ³ None 1½ lbs.	½"	1"	¼"	1"	2"	½"	No Limit ⁴
Over 1½ lbs. 6 lbs.	1"	2"	¼"	2"	3"	1"	
Over 6 lbs. 16 lbs.	1½"	2½"	½"	2½"	4"	1½"	
Over 16 lbs. None	2"	3"	½"	3"	5"	1½"	
Disjointed bones Broken bones Missing parts	1 None Wing tips and tail ⁵			2 disjointed and no broken or 1 disjointed and 1 non-protruding broken Wing tips, 2nd wing joint and tail Back area not wider than base of tail and extending half way between base of tail and hip joints.			No limit No limit Wing tips, wings and tail Back area not wider than base of tail extending to area between hip joints.
FREEZING DEFECTS (When consumer packaged)	Slight darkening over the back and drumsticks. Few small ⅛" pockmarks for poultry weighing 6 lbs. or less and ¼" pockmarks for poultry weighing more than 6 lbs. Occasional small areas showing layer of clear or pinkish ice.			Moderate dried areas not in excess of ½" in diameter. May lack brightness. Moderate areas showing layer of clear, pinkish or reddish colored ice.			Numerous pockmarks and large dried areas.

¹Total aggregate area of flesh exposed by all cuts and tears and missing skin, not exceeding the area of a circle of the diameters shown.

²A carcass meeting the requirements of A quality for fleshing may be trimmed to remove skin and flesh defects, provided that no more than one-third of the flesh is exposed on any part and the meat yield is not appreciably affected.

³Flesh bruises and discolorations such as blue back are not permitted on breast and legs of A quality birds. Not more than

one-half of total aggregate area of discolorations may be due to flesh bruises or blue back (when permitted), and skin bruises in any combination.

⁴No limit on size and number of areas of discoloration and flesh bruises if such areas do not render any part of the carcass unfit for food.

⁵In ducks and geese, the parts of the wing beyond the second joint may be removed, if removed at the joint and both wings are so treated.

Guide for Estimating the Relative Size of Discolorations

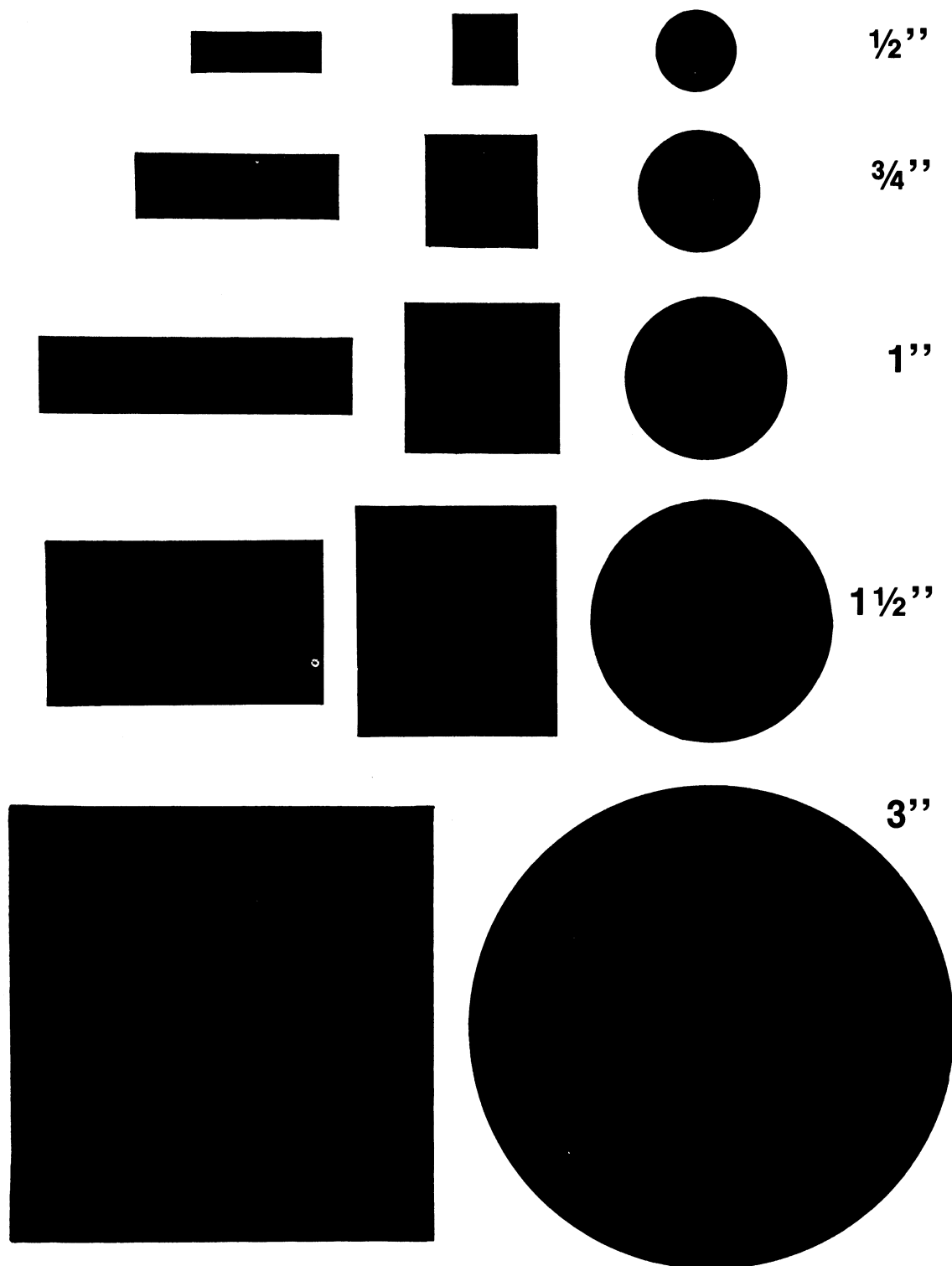


Figure 23

CLASSES OF POULTRY

"Kind" refers to the different species of poultry, such as chickens, turkeys, ducks, geese, guineas, and pigeons. The kinds of poultry are divided into classes which have essentially the same physical characteristics, such as fryers or hens. These physical characteristics are associated with age and sex. The class, if questionable, can best be determined when the bird is prepared into ready-to-cook form, by complete examination of the physical characteristics.

The kinds and classes of ready-to-cook poultry listed in the U.S. Classes, Standards, and Grades are in general use in all segments of the poultry industry.

The following provisions of the official U.S. Standards apply to individual carcasses of ready-to-cook poultry, in determining the kind of poultry and its class.

Chickens

Rock Cornish Game Hen or Cornish Game Hen

A Rock Cornish game hen or Cornish game hen is a young immature chicken (usually 5-6 weeks of age) weighing not more than 2 pounds ready-to-cook weight, which was prepared from a Cornish chicken or the progeny of a Cornish chicken crossed with another breed of chicken.

Rock Cornish Fryer, Roaster, or Hen

A Rock Cornish fryer, roaster, or hen is the progeny of a cross between a purebred Cornish and a purebred Rock chicken, without regard to the weight of the carcass involved. However, the term "fryer," "roaster," or "hen" shall apply only if the carcasses are from birds with ages and characteristics that qualify them for such designation under the next two paragraphs.

Broiler or Fryer

A broiler or fryer is a young chicken (usually under 13 weeks of age) of either sex that is tender-meated with soft, pliable, smooth-textured skin and flexible breastbone cartilage.

Roaster or Roasting Chicken

A bird of this class is a young chicken (usually 3 to 5 months of age), of either sex, that is tender-meated with soft, pliable, smooth-textured skin and breastbone cartilage that may

be somewhat less flexible than that of a broiler or fryer.

Capon

A capon is a surgically unsexed male chicken (usually under 8 months of age) that is tender-meated with soft, pliable, smooth-textured skin.

Hen, Fowl, or Baking or Stewing Chicken

A bird of this class is a mature female chicken (usually more than 10 months of age) with meat less tender than that of a roaster or roasting chicken and nonflexible breastbone tip.

Cock or Rooster

A cock or rooster is a mature male chicken with coarse skin, toughened and darkened meat, and hardened breastbone tip.

Turkeys

Fryer-Roaster Turkey

A fryer-roaster turkey is a young immature turkey (usually under 16 weeks of age), of either sex, that is tender-meated with soft, pliable smooth-textured skin, and flexible breastbone cartilage.

Young Turkey

A young turkey is a turkey (usually under 8 months of age) that is tender-meated with soft, pliable, smooth-textured skin and breastbone cartilage that is somewhat less flexible than in a fryer-roaster turkey. Sex designation is optional.

(For labeling purposes, the designation of sex within the class name is optional and the two classes of young turkeys may be grouped and designated as "young turkeys.")

Yearling Turkey

A yearling turkey is a fully matured turkey (usually under 15 months of age) that is reasonably tender-meated and with reasonable smooth-textured skin. Sex designation is optional.

Mature Turkey or Old Turkey (Hen or Tom)

A mature or old turkey is an old turkey of either sex (usually in excess of 15 months of age) with coarse skin and toughened flesh.

Ducks

Broiler Duckling or Fryer Duckling

A broiler duckling or fryer duckling is a young duck (usually under 8 weeks of age), of either sex, that is tender-meated and has a soft bill and soft windpipe.

Roaster Duckling

A roaster duckling is a young duck (usually under 16 weeks of age), of either sex, that is tender-meated and has a bill that is not completely hardened and a windpipe that is easily dented.

Mature Duck or Old Duck

A mature duck or an old duck is a duck (usually over 6 months of age), of either sex, with toughened flesh, hardened bill, and hardened windpipe.

Geese

Young Goose

A young goose may be of either sex, is tender-meated, and has a windpipe that is easily dented.

Mature Goose or Old Goose

A mature goose or old goose may be of either sex and has toughened flesh and hardened windpipe.

Guineas

Young Guinea

A young guinea may be of either sex, is tender-meated and has a flexible breastbone cartilage.

Mature Guinea or Old Guinea.

A mature guinea or an old guinea may be of either sex, has toughened flesh and a hardened breastbone.

Pigeons

Squab

A squab is a young immature pigeon of either sex, and is extra tender-meated.

Pigeon

A pigeon is a mature pigeon of either sex, with coarse skin and toughened flesh.

GRADING LIVE POULTRY

Live grade standards and all reference to dressed poultry have been deleted from the USDA poultry grading regulations. The former official live poultry standards are retained in this manual as suggested standards for the use of poultry judging classes, vocational agriculture classes and agricultural college courses.

Determining Class

Each class of poultry has distinctive characteristics which enable the grader to properly classify an individual bird or lot. The list of characteristics shown below is not all inclusive but it is complete enough to enable the grader to do a good job. A lot of poultry containing two or more classes would be described as a "mixed class."

Indications of Age in Poultry

	Young Birds	Mature Birds
Comb (chickens)	Pliable, resilient, not wrinkled, points sharp.	Wrinkled, coarser, thicker points, rounded.
Bill (ducks)	Pliable—Not completely hardened.	Hardened.
Plumage	Fresh, glossy appearance.	Faded, worn except in birds which have recently molted.
Fat	Smooth layers with brighter color. Not lumpy over feather tracts.	Generally darker in color, inclined to lumpiness over heavy feather tracts.
Breastbone	Cartilage, if present, pliable and soft.	End of keel hardened cartilage, bony.
Pinbones	Pliable.	Not pliable.
Shanks	Scales on shanks, smooth, small.	Scales, larger, rough, and slightly raised.

Indications of Age in Poultry—Continued

	Young Birds	Mature Birds
Oil Sac	Small, soft.	Enlarged, often hardened.
Spurs (male chickens, turkeys, occasionally adult females).	Small, undeveloped, corn-like.	Spurs gradually increase in length with age, becoming somewhat curved and sharper. Hens often have fine, sharp spurs after first year.
Wind pipe Ducks, Geese	Easily dented.	Hardened, almost bony-like to the touch.
Flesh	Tender meated, translucent appearance. Fine texture.	Coarser texture, darker, hardened muscle fibers.
Drumsticks	Lacking in development, muscles easily dented.	Generally rounded, full, firm.

Sex does not become a factor in classing poultry until the natural differences in the body conformation and distribution of flesh become quite evident. This never happens in such classes as geese and most breeds of ducks.

Indications of Sex in Poultry

	Males	Females
Head	Usually larger with larger and longer attachments, such as comb and wattles; coarser than that of females in appearance.	Smaller, rather fine and delicate in appearance compared with males. Hen turkeys have hair on center line of head.
Plumage	Feathers usually long and pointed at the ends. Tail feathers in chickens long and curved. Parti-colored varieties, have more brilliant colors than have the females. Most male ducks have a curl in the tail feathers.	Feathers inclined to be shorter and more blunt than those of the male. Tail feathers short and straight in comparison with the male. Modest colors in parti-colored varieties.

Indications of Sex in Poultry—Continued

	Males	Females
Body	Larger and generally more angular than the female. Depth from keel to back greater on same weight birds. Bones, including shanks, longer, larger, and coarser.	Finer boned, body more rounded.
Skin	Slightly coarser, particularly in old birds. Feather follicles larger. Less fat under skin between heavy feather tracts and over back.	Smoother, generally a better distribution of fat between feather tracts. Feather tracts narrower but carrying more fat.
Keel	Longer with fleshing tending to taper at the base.	Shorter with more rounded appearance over the breast.
Legs	Drumstick and thigh relatively long with flesh tending to show less full until mature.	Drumstick and thigh relatively shorter with drumstick more inclined to roundness, increasingly so with age.

Determining Condition

Condition refers to evidences of disease or other factors which may render the birds unfit for human food. The term reject is not a standard of quality. However, a grader may use this term to indicate that an individual live bird is affected by, or shows evidence of any disease or condition (including, but not limited to, large flesh bruises, severe discolorations, severe injury, and emaciation) which may render the bird or any part of it unfit for human food.

In general, the following symptoms should be watched for: definite discolorations of comb and wattles; lameness and droopiness; greenish, yellowish, brownish, or bloody diarrhea; gaping, sneezing, or rattling in throat; nasal discharges; swelling of sinuses or discharges from the eyes; fever; abnormal growths or swellings; emaciation; and a general lack of vigor and vitality as shown by the action of the bird. Other indications of disease are: (1) skin and flesh darker than normal, (2) comb and wattles shrunken, (3) the shanks pinched or shrunken, and (4) the skin and flesh with a doughy consistency.

Birds showing evidence of any disease or other condition which may render them unwholesome or unfit for human food shall not be included in any of the quality designations.

The fact that a bird has some condition which causes it to be classified as a reject does not necessarily mean that it must be destroyed. Parts or all of the bird might be found, upon evisceration and inspection, to be suitable for human food.

Quality Factors for Individual Birds

Quality refers to the inherent properties of any product which determine its relative degree of excellence. The following factors are considered in determining the quality of an individual bird.

Health and Vigor

A bird of high vitality usually has a strong, well-proportioned head with full, round, bright, alert eyes. The comb will be bright and of good texture. The plumage is usually glossy and clean due to the bird's natural desire to preen itself. The oil gland will be full of oil. The feathers around the vent usually will be clean and dry. The feathers on the body fit closely even on laying fowl which have been in production for some time and may have lost feathers due to partial molting.

A bird would be classified as having good health and vigor even though it was somewhat lacking in the conditions listed for a bird of high vitality. It should not be listless. The body feathers should be reasonably close. The feathers around the vent may show some soiling. The comb should be reasonably bright.

Birds lacking in vigor may be listless. The comb may be dark or pale. The feathers may be loose and ruffled. There may be a considerable amount of soiling around the vent.

Feathering

The primary concern with the feathering of a bird is the presence of pinfeathers, particularly those just coming through the skin, and with bare, discolored areas and areas containing broken quills. Well-feathered birds are those which can be readily processed into ready-to-cook A quality birds. Pinfeathers, areas discolored because of broken quills, or sunburn from inadequate feathering lower the quality of the bird.

Conformation

The ideal shape of a meat bird approaches that of a rectangle. Such structure allows ample room for the digestive organs and circulatory system. Properly fed, a bird of this type is more apt to take on good flesh and fat cover. Some of the common defects a thorough examination will reveal are breasts that are dented, crooked, knobby, V-shaped, or slab sided; backs that are narrow, crooked or hunched; legs and wings that are deformed; and bodies that are definitely wedge shaped.

Fleshing

The amount and distribution of flesh on the bird determines to a considerable degree its attractiveness or sales appeal. The drumsticks, thighs, and breast carry the bulk of the flesh and these parts should be examined closely. The common defects in fleshing are: breasts that do not carry width well back to the end of the keel; breasts that are V-shaped or concave rather than full and rounded; legs and drumsticks which are thin; and backs that are not moderately well fleshed along the vertebrae and around the hip bones.

Fat

One of the first things market people look for is the amount of fat in the skin. Without a good fat cover, a well-fleshed bird loses a great deal of its eye appeal. The most common defects are lack of fat cover in the skin between the heavy feather tracts; lack of fat in the collar of the wishbone in chickens; lack of fat where the thigh skin joins the breast; and thin skin over the abdomen. The web of the wing indicates the degree of fat cover. The skin of the abdomen pinched between the thumb and fingers is a good indicator.

Degree of Freedom From Defects

Tears and broken or disjointed wings are found infrequently in live birds. The wings and breast should be examined carefully for skin and flesh bruises. Most of these defects are caused in handling the birds. The grader should take care when getting samples and handling the birds so that bruising and breaking bones will be minimized.

Common defects which are apt to be prevalent in some flocks and entirely absent in others are watery breast blisters, heavy callouses on the breast; insect bites which may be slightly reddened or infected (such as chiggers or red

bugs); and discolorations due to broken quills and picking, such as bare backs, blue tail, or blue backs due to normal pigment concentrated in certain areas from damaged immature feathers of colored varieties of turkeys. Blue back in turkeys may also be due to a condition known as dermal melanosis, which is genetic and not due to feather damage.

Combining Quality Factors

In placing a bird in its proper quality classification, it is important to remember that each individual quality grading factor has to be evaluated and that the final quality of the bird is established on the basis of the lowest quality grading factor. For example, a bird may be of A quality in all except one quality grading factor. Assuming that this factor is B quality, the final classification of the bird would be B quality. Any defects which would make the bird unfit for slaughter for human food are not included in the standards of quality.

Suggested Standards of Quality

There are three suggested standards of quality for live poultry. They are: A or No. 1 quality, B or No. 2 quality, and C or No. 3 quality. The standards are outlined below.

A or No. 1 Quality

To be of A or No. 1 quality the live bird—

Is alert, has bright eyes, and is of good health and vigor.

Is well feathered, with feathers quite thoroughly covering all parts of the body, and may have a slight scattering of pinfeathers.

Is of normal physical conformation. (Slight deformities which do not affect the normal distribution of the flesh and do not detract from the appearance of the carcass are permitted.)

Has a well-developed, moderately broad and long breast sufficiently well-fleshed so that the breast has a rounded appearance with the flesh carrying well up to the crest of the breastbone, and has legs that are well-fleshed.

Has a well-developed covering of fat in the skin considering the class, age, and sex of the bird.

May have slight scratches, slight skin bruises,

and slight callouses (i.e., slightly thickened, hardened, and darkened areas of skin over the breastbone), if these conditions do not materially affect the appearance of the bird, especially the breast; and may also have slightly scaly shanks; but is otherwise free from tears, broken bones, and breast blisters.

B or No. 2 Quality

To be of B quality or No. 2 quality the live bird—

Is of good health and vigor.

Is fairly well feathered (i.e., some feathers may be lacking on some parts of the body); and may have a moderate number of pinfeathers.

May have moderate deformities in conformation such as a dented, curved or crooked breast, crooked back, or misshapen legs or wings which do not seriously affect the distribution of the flesh or the appearance of the carcass.

Has sufficient flesh on the breast and legs so as to prevent a thin appearance and a definite breastbone crestline.

Has noticeable fat in the feather tracts of the breast and has sufficient fat in the skin on the breast and legs to prevent a distinct appearance of the flesh through the skin.

Is free from tears, broken bones, flesh bruises, severe breast blisters, heavy callouses (i.e., thickened, hardened, and darkened areas of skin over the breastbone) and seriously scaly shanks; but it may have moderate skin bruises and scratches.

C or No. 3 Quality

Any live bird, other than those classed as rejects, that does not meet the requirements of A or B Quality or No. 1 or 2 Quality may be of C Quality or No. 3 Quality. Such birds may—

Be lacking in vigor.

Have a large number of pinfeathers over all parts of the body and complete lack of plumage feathers on the back.

Have definite, but not pronounced deformities (including, but not being limited to, a crooked breastbone, hunchback, and slight crippling).

Be poorly fleshed, but not emaciated.

Have only a small amount of fat in the feather tracts and be completely lacking in fat on back and thighs; and

Have serious skin bruises and moderate flesh bruises, and more severe breast blisters than allowed for B Quality or No. 2 Quality.

Reject

The term reject is not a standard of quality. However, this term may be used to indicate that a live bird shows evidence of having a disease

or condition (including, but not limited to large flesh bruises, severe discolorations, severe injury, and emaciation) which may make it unfit for human food.

SUMMARY OF SUGGESTED STANDARDS OF QUALITY FOR LIVE POULTRY ON AN INDIVIDUAL BIRD BASIS

(Minimum Requirements and Maximum Defects Permitted)

Factor	A or No. 1 Quality	B or No. 2 Quality	C or No. 3 Quality
HEALTH AND VIGOR	Alert, bright eyes, healthy, vigorous	Good health and vigor	Lacking in vigor
FEATHERING	Well covered with feathers.	Fairly well covered with feathers.	Complete lack of plumage feathers on back.
	Slight scattering of pin feathers.	Moderate number of pin feathers.	Large number of pin feathers.
CONFORMATION	Normal	Practically normal	Abnormal
Breastbone	Slight curve, $\frac{1}{8}$ " dent (chickens) $\frac{1}{4}$ " dent (turkeys)	Slightly crooked	Crooked
Back	Normal (except slight curve)	Moderately crooked	Crooked or hunched back
Legs and wings	Normal	Slightly misshapen	Misshapen
FLESHING	Well fleshed, moderately broad and long breast	Fairly well fleshed	Poorly developed, narrow breast, thin covering of flesh
FAT COVERING	Well covered, some fat under skin over entire carcass. Chicken fryers and turkey fryers and young toms only moderate covering. No excess abdominal fat.	Enough fat on breast and legs to prevent a distinct appearance of flesh through skin. Hens or fowl may have excessive abdominal fat.	Lacking in fat covering on back and thighs, small amount in feather tracts.
DEFECTS	Slight	Moderate	Serious
Tears and broken bones	Free	Free	Free
Bruises, scratches and callouses	Slight skin bruises, scratches and callouses	Moderate (except only slight flesh bruises)	Unlimited to extent no part unfit for food.
Shanks	Slightly scaly	Moderately scaly	Seriously scaly

Bird Examination

The grader determines the health, vigor, and class by observing the general appearance of the birds in the flock or batteries and then determines the quality and condition by examining the individual bird. Figure 24 shows body configurations of birds with normal and low vitality. The bird should be removed from the coop, cage, or battery as gently as possible. One hand should be placed under the bird with the bird resting on the palm of the hand and the legs held between the fingers. The other hand should be placed on the back and wings of large birds to assist in holding, lifting and keeping the wings from flapping. The bird is removed head first from the coop, cage, or battery. During the examination the bird should be held with the head toward the side of the grader.

The bird should rest on the palm of one hand with the fingers around the hock joint and the head against the grader. The other hand should

be free to explore the body structure, muscle development and to turn back the feathers. The breast is examined first and then the drumsticks. While examining the breast and drumsticks for fleshing, the feathers are turned back by moving the free hand through them against their natural direction. This provides an opportunity to observe the presence of fat deposits under the skin before the feathers fall back in place. In some varieties the grader must augment his motions with slight puffs of his breath to briefly move back a short dense fluff-like feathering next to the skin. As the fleshing is determined and the amount of fat is observed, the grader also notes the presence of bruises, cuts, tears, blisters, callouses, broken or dislocated bones, and the state of development of pinfeathers. Pinfeathers still under the skin or just barely through the skin are quality penalties. After examination of the breast and drumsticks the same procedure is followed for the back, hips, and wings.

In turkeys, the degree of freedom from

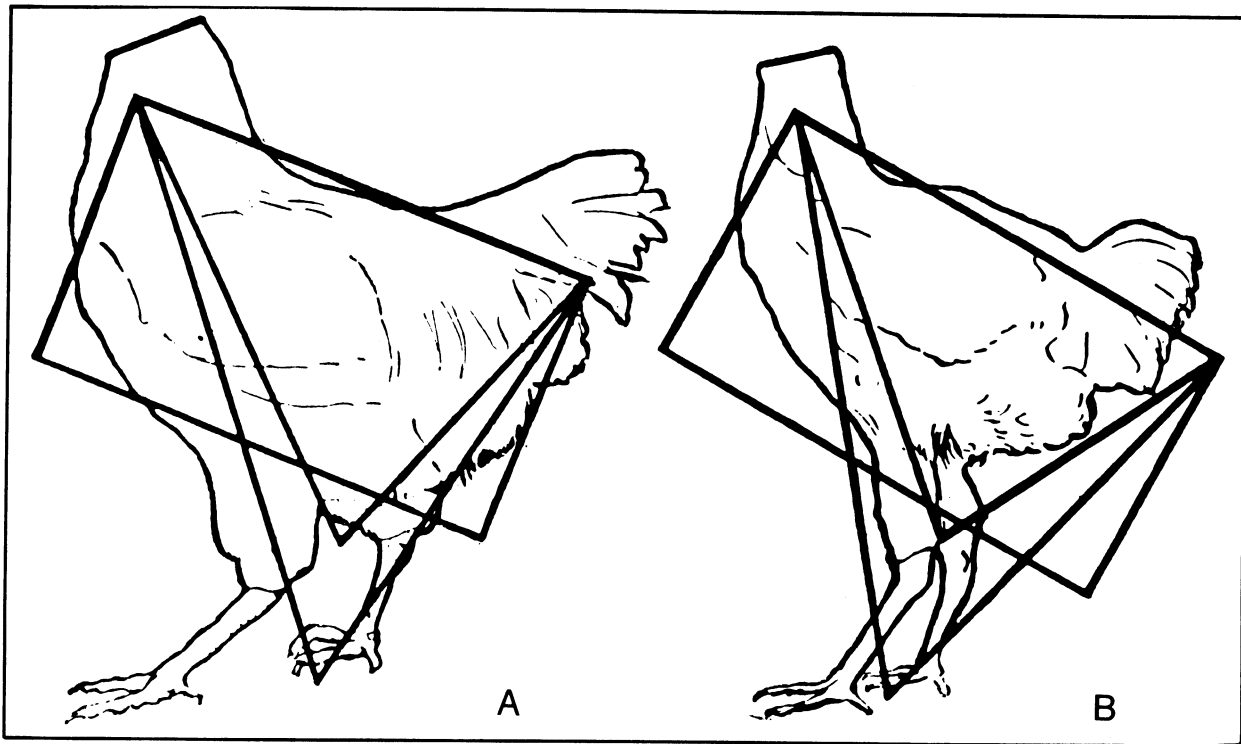


Figure 24.—A bird of normal development for the variety (A) will more nearly fill a rectangle than will a bird of low vitality (B) whose body more closely approaches the shape

of a triangle.

(After Rice, Hall, and Marble: Judging Poultry for Production)

pigment in the base of the tail feathers and wing quills is generally indicative of the stage of development of the pinfeathers. When examining turkeys, the grader should look for wing tip bruises and tears or severe scars on the sides and back of the bird.

Whether the grader is handling large or small classes, care should be exercised to prevent the wings from flapping and the birds from struggling, to avoid bruises and other injuries.

PLANNING A GRADING SCHOOL

Planning is extremely important to the success of a grading school. A well-planned, well-organized, smooth-running school is an excellent way to promote desirable methods and practices of grading and related subjects.

Location and Time of the School

In planning a grading school, location is important. The school should be held in the

center of the region from which students are drawn. It should be conducted where there is adequate space for classes and laboratories. Either the essential equipment and facilities should be available, or supplied by the sponsors of the school. The space needed will depend on the number of students, the number of instructors, the equipment and facilities, and the type of grading (live or processed poultry) to be done. The school should be held where room and board can be provided.

It is good to hold the school when the regular work of the students is not too demanding and when there are not too many other meetings, expositions, conventions, or special schools under way.

Equipment and Facilities

The following facilities and equipment should be provided in sizes and quantities sufficient to accommodate the number of students and instructors attending the school:

1. A room for lectures and demonstrations.
2. A room for laboratory sessions and

demonstrations. For poultry-grading schools, a processing plant where there is enough room for lectures and laboratory practice is satisfactory. (A number of universities have now installed small modern poultry processing plants for their students. The use of such facilities between terms, with some of the teaching staff available for assistance provides an ideal arrangement.)

3. Coops or batteries for holding live birds. Tables, racks, or cords for displaying processed birds.

4. Tables and chairs for lecture room.

5. Reflectoscopes, slide and film strip projectors, motion-picture projector (when used), visual scope, screens, and other similar educational facilities.

6. Manuals, educational material, pads, pencils, and examination papers.

7. Registration blanks, announcements.

8. Laboratory forms for recording results.

When working with ready-to-cook birds, it is

desirable to have the birds on shackles with the carcass at eye level. Legible numbers should be attached to the shackles for easy identification. If tables are used, they should be narrow so students can work from both sides. The height of the table should be slightly above waist level so the birds can be rolled over for examination rather than picked up.

Individual live birds should be in separate cages at a level for easy handling. Leg band numbers can be used to identify the sample for later reference.

Suggested Programs

Suggestions for 2, 3, and 4-day schools for graders of ready-to-cook poultry are outlined below. With variations and rearrangement, these suggestions could be used as a basis for planning the program to cover a 5-day school for graders of processed poultry.

Suggested 2-day program for a school for processed poultry grading

First Day of School

Morning -----Registration
Program discussion
Determining the condition of processed poultry
Determining the class of poultry
Laboratory study on condition and class factors

Lunch

Afternoon -----Quality factors
Conformation and fleshing
Laboratory study on conformation and fleshing
Discussion period

Evening-----USDA grading and inspection programs
State grading programs

Second Day of School

Morning -----Fat covering
Laboratory study on fat covering
Defects in dressing
Laboratory study on defects in dressing

Lunch

Afternoon -----Combining all quality factors
Laboratory study on combining all the grading factors
Discussion period
Examination

Suggested 3-day program for a school for processed poultry grading

First Day of School

Morning -----Registration
Program discussion
Determining condition of processed poultry
Determining the class of poultry
Laboratory study on condition and class factors

Lunch

Afternoon -----Quality factors
Conformation and fleshing
Laboratory study on conformation and fleshing
Discussion period

Evening-----Educational or recreational program

Second Day of School

Morning -----The USDA grading and inspection programs
Fat covering
Laboratory study on fat covering
Discussion period

Lunch

Afternoon -----Defects in dressing
Laboratory study on defects in dressing
Sanitation in poultry processing
Discussion period

Third Day of School

Morning -----Combining all quality factors
Laboratory study on combining all quality factors

Lunch

Afternoon -----State and municipal grading and marketing laws
Review
Examinations, written and oral

Suggested 4-day program for a school for processed poultry grading

First Day of School

Morning -----Registration
Plans for the school
Determining condition of processed poultry
Determining the class of poultry

Lunch

Afternoon -----Laboratory study on class and condition factors
Breeding, feeding, and disease as they affect poultry quality
Poultry and marketing research
Discussion period

Evening-----Educational or recreational program

Second Day of School

Morning -----Quality factors
Conformation and fleshing
Laboratory study on conformation and fleshing

Lunch

Afternoon -----The USDA grading and inspection program
State grading programs
Fat covering
Laboratory study on fat covering
Discussion period

Evening-----Educational or recreational program

Third Day of School

Morning -----Packages and packing
Sanitation in poultry processing
Defects in dressing
Laboratory study on defects in dressing

Lunch

Afternoon -----Merchandising poultry
Combining all quality factors
Laboratory study on combining all the quality factors
Inspection for wholesomeness
State and municipal grading and marketing laws
Discussion period

Fourth Day of School

Morning -----Market-poultry improvement
Practice Grading poultry according to USDA standards
Final review
Laboratory practice

Lunch

Afternoon -----Examinations, written and oral

These outlines can be adapted for live poultry by substituting the appropriate quality factors. Note that the suggested laboratory form No. 1 can be used for either live or processed poultry since the student writes in the factor being studied. Separate laboratory forms are necessary when combining all factors. Laboratory forms No. 2 and No. 3 are suggested for that purpose.

LABORATORY FORM NO. 1
STUDY OF INDIVIDUAL FACTORS

STUDENT'S NAME _____ DATE _____

ADDRESS _____ LAB. NO. _____

Write in below the name of the factor being studied, such as: Condition, Class, Fat covering, Fleshing, etc.

FACTOR				FACTOR			
Bird No.	Rating	Reason	Instructor's Rating	Bird No.	Rating	Reason	Instructor's Rating
1				1			
2				2			
3				3			
4				4			
5				5			
6				6			
7				7			
8				8			
9				9			
10				10			
11				11			
12				12			
13				13			
14				14			
15				15			
16				16			
17				17			
18				18			
19				19			
20				20			
21				21			
22				22			
23				23			
24				24			
25				25			

This form can be used for condition, class, and/or quality factors by inserting the factor being studied at the top of column. Condition is to be recorded as "Sound" or "Reject." Class is to be recorded as Fryer, Roaster, Stewing Chicken, etc. Quality Rating is to be recorded as A, B, C, Reject.

LABORATORY FORM NO. 2

Combining All Quality Factors

LIVE POULTRY

STUDENT'S NAME _____ DATE _____
 ADDRESS _____ LAB. NO. _____

Bird No.	Health Vigor		Feathering		Conformation		Fleshing		Fat cover		Freedom from Defects		Final Grade	
	Student	Instructor	Student	Instructor	Student	Instructor	Student	Instructor	Student	Instructor	Student	Instructor	Student	Instructor
1														
2														
3														
4														
5														
6														
7														
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25														

Ratings should be made under each heading on the basis of A, B, C, or Reject--Use Letter "R" for Reject.

LABORATORY FORM NO. 3

Combining All Quality Factors

PROCESSED POULTRY

STUDENT'S NAME _____ DATE _____

ADDRESS _____ LAB. NO. _____

Bird No.	Conformation		Fleshing		Fat cover		Pinfeathers		Cuts, tears, and broken bones		Bruises and Discolorations		Final Grade	
	Student	In-structor	Student	In-structor	Student	In-structor	Student	In-structor	Student	In-structor	Student	In-structor	Student	In-structor
1														
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Ratings should be made under each heading on the basis of A, B, C, or Reject--Use letter "R" for Reject.

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